



UNITED STATES PATENT AND TRADEMARK OFFICE

GP

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/833,925	04/12/2001	Ronald Patrick Doyle	5577-230	3856
20792	7590	07/07/2005	EXAMINER	
MYERS BIGEL SIBLEY & SAJOVEC			CHANG, SUNRAY	
PO BOX 37428			ART UNIT	
RALEIGH, NC 27627			PAPER NUMBER	
			2121	

DATE MAILED: 07/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/833,925

Applicant(s)

DOYLE ET AL.

Examiner

Sunray Chang

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 May 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

R

DETAILED ACTION

1. This office action is in responsive to the paper filed on May 9th, 2005.
2. Claims 1 – 33 are presented for examination.

Claims 1 – 33 are rejected.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. **Claims 1 – 12, 16 – 26 and 30 – 33 are rejected** under 35 U.S.C. 102(e) as being anticipated by John B. Abjanic (U.S. Patent No. 6,732,175, and referred to as **Abjanic** hereinafter).

Regarding independent claims 1, 30 and 32, Abjanic teaches,

Art Unit: 2121

- A method of distributing workload [workload balancing] between a plurality of servers [among a group of servers], [Col. 7, Lines 4 – 6; see also Fig. 1 and Col. 5, Line 28 – Col. 7, Line 23] the method comprising:
 - receiving a plurality of requests [receive a message] over a first connection; [210, Fig. 1, Col. 5, Line 29 – Col. 6, Line 39; messages, Col. 7, Line 5]
 - parsing the plurality of requests to determine application layer information associated with each of the plurality of requests; [parse, 215, Fig. 1, Col. 6, Lines 40 – 49]
 - selecting destination servers [changed, updated, redirect] for corresponding ones of the plurality of requests based on the determined application layer information associated with each of the plurality of requests; [220, Fig. 1, Col. 6, Lines 50 – 62] and
 - distributing [directs or switches] the plurality of requests to the corresponding selected destination servers over a plurality of second connections associated with respective ones of the destination servers. [225, Fig. 1, Col. 6, Line 63 – Col. 7, Line 22]

Regarding dependent claim 2,

A method according to claim 1, wherein

- the first connection comprises an HTTP 1.1 connection. [HTTP 1.1, Col. 5, Lines 54 – 58]

Regarding dependent claims 3 and 23,

A method according to claim 1, wherein parsing the plurality of requests comprises:

- determining a start point and an end point [<from> </from>, <to> </to>, Col. 5, Lines 50 – 67; start tag, end tag, Col. 6, Lines 13 – 14] for each of the plurality of requests within the

Art Unit: 2121

first connection [HTTP 1.1, Col. 5, Lines 54 – 58]; [see also Col. 5, Line 28 – Col. 6, Line 49] and

- identifying application layer information within each of the plurality of requests.
[categorizing the characters or XML data, Col. 6, Line 47]

Regarding dependent claims 4 and 22,

A method according to claim 3, wherein the application layer information comprises

- layer 7 information and above. [request-line, <PurchaseBook> Col. 5, Lines 45 – 67]

Applicants define “layer 7 information and above”, according to specification [Page 3, Line 32 to Page 4, Line 2], may be a type of request, a client identification, and individual user identification, and/or a cookie.

Regarding dependent claims 5 and 21,

A method according to claim 3, wherein the application layer information comprises

- at least one of a type of request, a client identification, an individual user identification, and a cookie. [request-line <PurchaseBook> Col. 5, Lines 45 – 67]

Regarding dependent claim 6,

A method of claim 1, wherein the plurality of requests comprise

- a plurality of Hypertext Transport Protocol(HTTP) requests. [HTTP request, Col. 5, Line 41]

Regarding dependent claim 7,

Art Unit: 2121

A method according to claim 1, wherein selecting destination servers for corresponding ones of the plurality of requests comprises:

- determining if the determined application layer information associated with each of the plurality of requests is relevant application layer information; [determine if there is a match, Col. 6, Lines 53 – 54]
- selecting one of a subset of the destination servers if the application layer information associated with each of the plurality of requests is relevant application layer information; [configuration patterns may be dynamically changed or updated ... detect the failure ... then update ... redirect, Col. 6, Lines 54 – 62] and
- selecting a destination server other than a destination server in the subset of the destination servers if the application layer information associated with each of the plurality of requests is not relevant application layer information. [configuration patterns may be dynamically changed or updated ... detect the failure ... then update ... redirect, Col. 6, Lines 54 – 62]

Regarding dependent claims 8 and 19,

A method of claim 7, wherein selecting one of a subset of the destination servers if the application layer information associated with each of the plurality of requests is relevant application layer information, further comprises:

- determining a load associated with respective destination servers in the subset of destination servers; [busy, less busy, failed, Col. 6, Lines 60 – 62] and

Art Unit: 2121

- selecting the destination server in the subset of the destination servers based on the determined load. [redirect certain message from busy servers to servers which are less busy, Col. 6, Lines 60 – 62]

Regarding dependent claims 9 and 20,

A method of claim 7, wherein the subset of destination servers includes

- at least one server which is to receive requests having an indication of high priority, [markup] and wherein the indication of high priority is determined based on the existence and nonexistence of relevant application layer information. [the application data or XML data is then compared to one or more configuration patterns or queries, Col. 6, Lines 50 – 54; see also Col. 6, Lines 50 – 62]

Regarding dependent claims 10 and 24,

A method according to claim 1, wherein distributing the plurality of requests comprises:

- determining if a second connection [multiple matches] associated with a selected destination servers exists [specific server]; [Col. 7, Lines 1 – 6 and also Col. 6, Line 63 – Col. 7, Lines 15]
- establishing the second connection to the selected destination server if the second connection does not exist; [do not include XML data, add unnecessary latency in the message forwarding path, Col. 8, Lines 44 – 52]
- distributing a request to the selected destination servers over the second connection; [routing or switching, Col. 8, Lines 21 – 26] and

Art Unit: 2121

- repeating the determining, establishing and distributing for each of the plurality of requests.
[if ... then; incoming messages, Col. 8, Lines 21 – 26]

Regarding dependent claims 11 and 25,

A method according to claim 1, wherein

- receiving, parsing, selecting and distributing are carried out by an application executing on a data processing system. [Fig. 2, Col. 5, Lines 9 – 10, and 28 – 30; see also Col. 5, Lines 9 – 39]

Regarding dependent claims 12 and 26,

A method according to claim 1, further comprising

- tracking the plurality of requests and a plurality of corresponding responses to the plurality of requests. [if there is no match; if there are multiple matches, Col. 7, Lines 2 – 7]

Regarding independent claims 16, 31 and 33, Abjanic teaches,

- A method of distributing workload [loading balancing] between a plurality of servers [group of servers], [Col. 7, Lines 4 – 6] wherein each of the plurality of servers is executing an instance of an application which communicates over a network [between a network] such that each of a plurality of HTTP requests within a single HTTP 1.1 connection to the application may be distributed to any one of the plurality of servers, [processing nodes: web servers, application servers, fulfillment servers, XML servers, routers, switches, Col. 2, Line 65 – Col. 3, Line 9; see also Col. 3, Lines 10 – 15] the method comprising:

Art Unit: 2121

- defining a subset of the plurality of servers which are to receive HTTP requests having an indication of high priority; [multiple matches, Col. 7, Line 3; see Col. 6, Line 63 – Col. 7, Line 15]
- establishing an HTTP 1.1 connection responsive to receiving a request for an HTTP 1.1 connection to the application over the network; [broker translates ... for return or replies, Col. 10, Lines 56 – 67; HTTP 1.1, Col. 5, Line 53]
- receiving a first Hypertext Transport Protocol(HTTP) request within the HTTP 1.1 connection; [referred back to rejections to claims 1, 30 and 32]
- parsing the first HTTP request to determine if the first HTTP request has an indication of high priority based on application layer information included in the first HTTP request; [referred back to rejections to claims 1, 30 and 32] and
- distributing the first HTTP request to one of the subset of the plurality of servers over a first connection if the first HTTP request has an indication of high priority. [referred back to rejections to claims 1, 30 and 32]

Regarding dependent claim 17,

A method according to claim 16, further comprising:

- distributing the first HTTP request [message] to a server other than a server in the subset [default server] of the destination servers if the first HTTP request does not have an indication of high priority [matching configuration pattern]. [Col. 9, Lines 1 – 10]

Regarding dependent claim 18,

Art Unit: 2121

The method according to claim 16, further comprising:

- receiving a second HTTP request within the HTTP 1.1 connection parsing the second HTTP request to determine if the second HTTP request has an indication of high priority based on application layer information included in the second HTTP request; [Col. 6, Line 39 – Col. 7, Line 23]
- distributing the second HTTP request to one of the subset of the plurality of servers over a second connection if the second HTTP request has an indication of high priority; [Col. 6, Line 39 – Col. 7, Line 23] and
- repeating the receiving, parsing and distributing steps for each subsequent HTTP request received within the HTTP 1.1 connection. [Col. 6, Line 39 – Col. 7, Line 23]

Examiner further explains, the second HTTP request is transferring individually with the first HTTP request described in claim 16, basically is another message; **Abjanic** teaches more than one HTTP request [balance messages, Col. 7, Line 5; forward some messages, Col. 7, Line 11, direct or switch messages, Col. 7, Lines 13 – 14] for processing.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2121

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. **Claims 13 – 15 and 27 – 29 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Abjanic**, and in view of Mohit Aron et al. (“Efficient Support For P-HTTP in Cluster-Based Web Servers”, Department of Computer Science, Rice University, June, 1999, and referred to as Aron hereinafter).

(**Abjanic** as set forth above generally discloses the basic inventions.)

Regarding Claims 13 and 27,

Abjanic teaches routing the requests using network address translation. [broker also translates destination addresses, Col. 10, Lines 56 – 67]

Abjanic does not teach a routing layer of a communication protocol stack.

Aron teaches a routing layer [user-level processes, Page 10, Col. 1, Line 22] of a communication protocol stack [protocol stacks, Page 10, Col. 1, Line 23], for the purpose of providing a control session.

Regarding Claims 14 and 28,

Abjanic does not teach using session control translation at the routing layer of the communication protocol stack.

Aron teaches using session control [control session, Page 10, Col. 1, Line 34] translation at the routing layer [user-level processes, Page 10, Col. 1, Line 22] of the communication protocol stack [protocol stacks, Page 10, Col. 1, Line 22 – 23].

Regarding Claims 15 and 29,

Abjanic does not teach routing the corresponding responses to the requests using network address translation at a routing layer of a communication protocol stack.

Aron teaches routing the corresponding responses to the requests [sending multiple server responses, Page 2, Col. 1, Line 29] using session control [control session, Page 10, Col. 1, Line 34] translation at the routing layer [user-level processes, Page 10, Col. 1, Line 22] of the communication protocol stack [protocol stacks, Page 10, Col. 1, Line 22 – 23], for the purpose of forwarding the server's responses back to the clients who made requests.

Response to Amendment

Claim Rejections - 35 USC § 102 & 103

5. Examiner has withdrawn forth 102 & 103 rejections and new set rejections have been cited based on one new cited reference.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. **Abjanic** (U.S. P.G. Pub. 2004/0205597 and U.S. P.G. Pub. 2004/0230660) discloses a network apparatus for switching based on content of application data and a cascading network apparatus for scalability.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang whose telephone number is (571) 272-3682. The examiner can normally be reached on M-F 7:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-746-3506.

Sunray Chang
Patent Examiner
Group Art Unit 2121
Technology Center 2100
U.S. Patent and Trademark Office


Anthony Knight
Supervisory Patent Examiner
Group 3600

June 29, 2005